## **BARITE**

(Data in thousand metric tons unless otherwise noted)

<u>Domestic Production and Use</u>: In 2014, about 720,000 tons of crude barite was sold or used for grinding. The value of the ground barite was estimated to be \$90 million. Most of the production came from four mines in Nevada; a significantly smaller sales volume came from a single mine in Georgia. An estimated 3.42 million tons of barite (from domestic production and imports) was sold by crushers and grinders operating in eight States. Nearly 95% of the barite sold in the United States was used as a weighting agent in fluids used in the drilling of oil and natural gas wells. The majority of Nevada crude barite was ground in Nevada and then sold primarily to exploration companies drilling in Colorado, New Mexico, North Dakota, Utah, and Wyoming. Crude barite was shipped to a Canadian grinding mill in Lethbridge, Alberta, which supplied the western Canada drilling mud market. The barite imported to Louisiana and Texas mostly went to offshore drilling operations in the Gulf of Mexico and to onshore drilling operations in Louisiana, Oklahoma, and Texas.

Barite also is used as a filler, extender, or weighting agent in products such as paints, plastics, and rubber. Some specific applications include use in automobile brake and clutch pads, automobile paint primer for metal protection and gloss, and to add weight to rubber mudflaps on trucks and to the cement jacket around underwater petroleum pipelines. In the metal-casting industry, barite is part of the mold-release compounds. Because barite significantly blocks x-ray and gamma-ray emissions, it is used as aggregate in high-density concrete for radiation shielding around x-ray units in hospitals, nuclear powerplants, and university nuclear research facilities. Ultrapure barite consumed as liquid is used as a contrast medium in medical x-ray examinations.

Salient Statistics—United States:	<u>2010</u>	<u>2011</u>	<u> 2012</u>	<u>2013<sup>e</sup></u>	<u>2014<sup>e</sup></u>
Sold or used, mine	662	710	666	700	720
Imports for consumption	2,110	2,320	2,920	2,240	2,900
Exports	109	98	151	200	200
Consumption, apparent <sup>1</sup> (crude and ground)	2,660	2,930	3,430	2,740	3,420
Consumption <sup>2</sup> (ground and crushed)	2,570	2,910	3,310	2,700	3,400
Estimated price, average value,					
dollars per ton, f.o.b. mine	83	94	107	116	125
Employment, mine and mill, number <sup>e</sup>	379	461	554	624	625
Net import reliance <sup>3</sup> as a percentage of					
apparent consumption	75	76	81	74	79

Recycling: None.

Import Sources (2010-13): China, 80%; India, 11%; Morocco, 4%; Mexico, 3%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12–31–14
Ground barite	2511.10.1000	Free.
Crude barite	2511.10.5000	\$1.25 per metric ton.
Oxide, hydroxide, and peroxide	2816.40.2000	2% ad val.
Other chlorides	2827.39.4500	4.2% ad val.
Other sulfates of barium	2833.27.0000	0.6% ad val.
Carbonate	2836.60.0000	2.3% ad val.

**Depletion Allowance:** 14% (Domestic and foreign).

Government Stockpile: None.

## **BARITE**

Events, Trends, and Issues: Because oil and gas drilling is the dominant use of barite in the United States, the count of operating drill rigs exploring for oil and gas is a good barometer of barite consumption or industry stockpiling. During 2014, the number of drill rigs operating in the United States rose steadily—from 1,757 at yearend 2013 to 1,918 in October 2014. Estimated 2014 barite imports increased by more than 29% compared with those of 2013, indicating increased demand for barite in the drilling sector.

The dependency on a few major exporting countries and rising prices has led to increased interest in diversifying barite supply. In the United States, this is evidenced by a notable decrease in barite imports from China. The 4-year average of barite imports from China peaked during the years 2006–09, representing 95% of the total. By the end of 2013, this percentage had dropped to 80%.

Globally, there is ongoing interest in developing new sources of barite. Barite mining projects in various stages of development were underway in Canada, Georgia, Guatemala, Kazakhstan, Liberia, Mexico, Nigeria, Zimbabwe, and possibly in other countries.

World Mine Production and Reserves: Reserves data for India were revised based on Government information.

	Mine p	Reserves⁴	
	<u>2013<sup>e</sup></u>	2014 <sup>e</sup>	
United States	700	720	15,000
China	4,000	4,100	100,000
India	1,740	1,600	32,000
Iran	270	270	NA
Kazakhstan	250	250	85,000
Mexico	344	400	7,000
Morocco	1,000	1,000	10,000
Pakistan	118	75	1,000
Turkey	250	270	35,000
Other countries	558	575	66,000
World total (rounded)	9,230	9,260	350,000

<u>World Resources</u>: In the United States, identified resources of barite are estimated to be 150 million tons, and undiscovered resources include an additional 150 million tons. The world's barite resources in all categories are about 2 billion tons, but only about 740 million tons is identified resources.

<u>Substitutes</u>: In the drilling mud market, alternatives to barite include celestite, ilmenite, iron ore, and synthetic hematite that is manufactured in Germany. None of these substitutes, however, has had a major impact on the barite drilling mud industry.

<sup>&</sup>lt;sup>e</sup>Estimated. NA Not available.

<sup>&</sup>lt;sup>1</sup>Defined as sold or used by domestic mines + imports – exports.

<sup>&</sup>lt;sup>2</sup>Imported and domestic barite, crushed and ground, sold or used by domestic grinding establishments.

<sup>&</sup>lt;sup>3</sup>Defined as imports – exports.

<sup>&</sup>lt;sup>4</sup>See Appendix C for resource/reserve definitions and information concerning data sources.